

REMARKS

Claims 9-16 are currently pending in the present application. Claims 9 and 16 are amended. No new matter is presented. In view of the above amendments to the claims and the following remarks, Applicants request the reconsideration of claims 9-16.

The Examiner objected to the drawings for failing to show every feature of the claimed invention. More specifically, the Examiner indicates that the “one trapezoidal element” as recited in claim 12 and the “raised portion of the backplate is less than the height of the raised portions” as recited in claim 13, must be illustrated or cancelled from the claims. Applicants respectfully submit that the features recited in claims 12 and 13 are illustrated.

The trapezoidal element of the backplate is illustrated in Figure 4. A trapezoid is defined as a quadrilateral having two parallel sides. As illustrated in Figure 4, the backplate provides that the two vertical sides are parallel. The top and bottom portion of the backplate in this embodiment, are not parallel, thus providing at least one trapezoidal element as recited in claim 12.

Claim 13 recites an embodiment wherein an air gap between the diaphragm and the raised portions of the backplate is less than the height of the raised portions. In Figures 3 and 4, it can be seen that the backplate has raised portions as well as portions in between the raised portions which are not raised. Accordingly, it can be clearly seen that the air gap between the diaphragm and the raised portions is less than the height of the raised portions. This is illustrated in Figure 4. Therefore, Applicants request the withdrawal of the objection to the drawings.

Claim 16 is objected for being in improper dependent form. The Examiner indicates that claim 16 fails to further limit the subject matter of a previous claim. Claim 16 is amended to be in independent form. Therefore, Applicants request the withdrawal of the objection to claim 16.

Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norris (U.S. Patent No. 6,044,160). The Examiner indicates that Norris fails to clearly teach

corrugations in the backplate caused by embossing. However, the Examiner takes the position that the present invention does not disclose that forming cavities in the backplate is critical to the invention. Applicants respectfully submit that Norris fails to teach or suggest all the features recited in claims 9-16.

Claim 9 recites an ultrasound transducer comprising a diaphragm and an embossed backplate. A first area is provided wherein the diaphragm and the embossed backplate are in contact. A second area is also provided wherein the diaphragm and the embossed backplate are not in contact. The first area is small compared to the second area. The claimed invention provides numerous benefits and advantages. For instance, the claimed invention provides that the air gap between the diaphragm M and the embossed backplate G in the area of the raised portions is less than the height of the raised portions. As a result, the excitation forces in these areas are substantially higher than in the areas between the raised portions and therefore the transducer efficiency increases. In view of the cited features, the claimed invention provided benefits and advantages that are neither taught nor suggested by the applied reference.

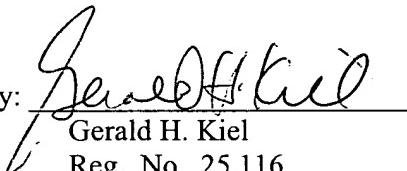
Norris discloses an ultrasonic emitter device having an array of cavities for enhancing the resonant frequency operable as a carrier frequency within an ultrasound frequency range. Norris further discloses cavities 16 formed in the substrate 11. Each cavity 16 comprises a concave recess with respect to the top surface of the substrate 11. Norris also discloses an ultrasonic transducer where the contact area between the diaphragm and the backplate is large in comparison to the area of the cavities 16. Thus, the backplate and the diaphragm, as disclosed in Norris, are not in contact with each other since the contact area between the diaphragm and the backplate is large. Accordingly, Norris does not teach or suggest the feature of a first area, wherein the diaphragm and the embossed backplate are in contact with each other and a second area where the diaphragm and the embossed backplate are not in contact, and the first area being small compared to the second area. Furthermore, Norris fails to teach or suggest an embossed backplate, as admitted by the Examiner. Since Norris fails to teach or suggest all the features recited in claim 9, Applicants submit that claim 9 recites

patentable subject matter. Therefore, Applicants request the withdrawal of the rejection of claim 9 under 35 U.S.C. 103(a).

Claims 10-16 are dependent upon independent claim 9, therefore, it is respectfully submitted that for at least the reasons mentioned above claims 10-16 recite subject matter that is neither taught or suggested by the applied reference. Accordingly, Applicants request the withdrawal of the rejection of claims 10-16.

Based upon the above amendments and remarks, Applicant respectfully requests the allowance of claims 9-16. Should the Examiner feel that a telephone conference with Applicant's attorney would expedite the prosecution of this application, the Examiner is urged to contact him at the number indicated below.

Respectfully submitted,

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